

## SECURED MICROCONTROLLER ARCHITECTURE

### ABSTRACT OF THE DISCLOSURE

5 A microcontroller unit (MCU) having a primary, or main, processing unit, a secondary processing unit coupled to the primary processing unit, and a common memory coupled to the primary and secondary processing units is disclosed. A functional compare module is coupled to the primary processing unit and the secondary processing unit for comparing a primary output of the  
10 primary processing unit and a secondary output of the secondary processing units to detect a fault if the primary output and the secondary output are not the same. The invention provides a method for detecting a fault in the MCU including the steps of reading a control algorithm stored in the common memory by the primary processing unit, reading the control algorithm stored in  
15 the common memory by the secondary processing unit, comparing the primary output and the secondary output and responsively detecting a fault, if the primary output does not match the second output.